

The Effects of Political and Fiscal Incentives on Local Government Behavior
– An Analysis of Fiscal Slack in China

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ABSTRACT

This study examines the determinants of fiscal slack from the perspective of Chinese local government officials. Given China's rapid economic growth over the past 30-plus years, Chinese local governments reportedly hold huge slack resources that attract public scrutiny. In an effort to improve their fiscal performance, some localities recently established budget stabilization funds, following a top-down initiative. However, it remains unclear to what extent fiscal slack has accumulated and which factors affect slack resource levels of Chinese local governments. By employing a panel dataset (249 prefecture-level cities, 1999–2009), this study finds that political and fiscal factors exert significant influence over local officials' decisions about slack resource levels. The findings of the study bear implications for establishing fiscal rules and improving the performance of sub-national governments in China and other countries.

INTRODUCTION

With the country's rapid economic growth over the past three decades, Chinese local governments have often reportedly shown significant fiscal slack, or unspent budgetary funds at the end of a fiscal year, which has attracted great public scrutiny in recent years.¹ Local governments in China are frequently plagued by the unexpected problem of delays in spending and the accumulation of significant year-end fiscal balances ([Ma and Yu 2012](#)). On the one hand, these slack resources suggest that Chinese local governments are generally situated in a strong fiscal position with abundant resources to tap into when dealing with emergencies such as the Great Recession. On the other hand, huge amounts of unused resources cause concerns over government operational efficiency and inadequate capacity in budget implementation. The public and the research community have therefore begun to question why these governments do not spend their resources as budgeted ([Ma and Yu 2012](#)).²

Since 1994 China has used a highly centralized revenue system and fairly decentralized expenditure assignments to local governments; thus far, the country has not fully adopted open, democratic mechanisms for budgetary decision making or for the oversight of budget execution. In this financial administrative structure, local governments in China face distinctive political and fiscal incentives related to fiscal operations from their counterparts in Western countries. In addition, Chinese local governments' fiscal behavior, reform strategies, and outcomes are mainly determined by China's political and economic institutions ([Xu 2011](#)). Based on the foregoing, this study investigates the role of local governments in financial administration in the Chinese governance structure.

Scholars generally agree that the quality of political and economic institutions is important for reform and development, because it determines the incentives for government

officials and all the players in an economy. Standard theory would suggest that, under poor institutions in consequence of a lack of democratic accountability and an absence of the rule of law, Chinese officials would not commit to promoting reform and development. However, the sharp contrast between China's "poor" institutions and its remarkable performance³ poses serious challenges to our general understanding of the mechanics of these institutions. Without a thorough understanding of the working mechanisms of institutions in developing countries, China's performance becomes inexplicable ([Xu 2011](#)).

Numerous studies have attempted to explain China's incredible performance in reform and development since 1978. Nevertheless, none of them has examined what factors affect the level of the year-end balances experienced by Chinese local governments. As the frontline body in the provision of public services, local governments ideally should uphold the policy inclination to act countercyclically to stabilize their budgets, or service provisions, because recessions are the exact time when local residents rely on basic public services to be steadfast so that they can overcome financial and employment hardships (Hou 2010). As observed by Dothan et al. (2013), the provision of stability is central to government purpose, with the management of risk and uncertainty as its basic function; thus, the goal of government budget process is stability. In the United States, the "adoption, maintenance, and prudent use of budgetary stabilization funds have become fundamental precepts of municipal financial management" (Snow, Gianakis, and Haughton 2015, p.304). In China, the effort to establish an institutionalized fiscal reserve system for sub-national governments began fairly recently. To improve fiscal performance, following an initiative of the central government in 2007 some province-level governments began to establish budget stabilization funds, and sub-provincial governments may follow suit.⁴ Only in recent years have scholars begun to investigate the management of fiscal slack in local

governments. There is a growing body of literature on this topic, but the variables that influence the size of financial reserves are poorly understood (Snow, Gianakis, and Haughton 2015). Two decades after the overhaul of its fiscal system in 1994, China has finally set a timetable to finish major fiscal and tax reform tasks by 2016, and to establish a modern fiscal system by 2020 (China Daily 2014). Thus, this study not only fills a niche in the literature, but also offers timely and important practical implications.

By using a panel dataset of 249 prefectural city governments from 1999 to 2009, this study aims to answer an important research question: Which political and fiscal factors influence Chinese local government behaviors concerning fiscal slack? The investigation of the working mechanisms of the institutions concerned with financial administration in Chinese local governments will contribute to improving our theoretical understanding of what constitutes an institution and of the quality of such institutions in developing countries. Policy recommendations based on such an analysis would also enhance institutional capacity building of other developing countries facing similar challenges in their process of reform and development.

This analysis chooses to focus on prefectural city governments for the following two reasons:⁵ First, sub-provincial intergovernmental fiscal arrangements are known to vary significantly because the central government does not exert tight control over them; thus, provincial governments enjoy substantial discretion in this regard (Wu and Wang 2013). Local governments also provide the majority of public services, with sub-national spending accounting for 70 percent of total spending, with 55 percent of that amount spent by sub-provincial governments (World Bank 2002). Therefore, prefectural city governments play a uniquely significant role in China's reform and development. Second, their sample size (17 prefectures

and 283 prefecture-level cities in 2006) is much larger than that of provincial-level governments (31), which will help to disentangle patterns of local government behavior that could not be revealed at the aggregate national or provincial levels.

The remainder of the paper is organized into six sections. The next section reviews existing literature on the determinants of local government fiscal slack in both Western countries and China. Section Three discusses the effects of political and fiscal incentives on local fiscal slack in China and presents hypotheses for empirical testing. Section Four presents model, data, and methodology, followed by a discussion of the study's empirical results in Section Five. The final section offers conclusions and recommendations.

DETERMINANTS OF LOCAL FISCAL SLACK

State and local governments in the United States accumulate fiscal slack via either formal “rainy day funds” or informal means such as year-end balances of the general fund, other governmental funds, and enterprise funds ([Wang and Hou 2012](#)). Local governments do not use rainy day funds as widely as state governments (Hou 2008); instead, they primarily rely on fund balances as a buffer against natural disasters and revenue shortfalls to help stabilize tax and fee rates as well as public service levels ([Coe 2007](#); Marlowe 2005; Shelton and Tyler 2000). Fund balance is often used as an indicator of local fiscal health; balance levels are also an important factor to consider for local long-term financial planning. State laws and regulations often prescribe appropriate levels of fund balances (Government Finance Officers Association (GFOA) 2002). Credit rating agencies closely examine multiple measures of local fund balance when they assess local governments' creditworthiness. The GFOA (2002) recommends that state and local governments establish a formal policy on the appropriate level of unreserved fund balance in the

general fund.

There is a small, but growing, body of literature regarding the factors that affect the size of the fund balances of local governments in the United States. This literature is in its early stages (Snow, Gianakis, and Haughton 2015) and still needs to “develop a theoretical model that incorporates relevant managerial, organizational, and political features” (Hendrick 2006, p.43). Previous studies did not identify many common factors that affected the size of the fund balance maintained by local governments. By employing panel data on Chicago suburban municipalities, Hendrick (2006) finds that current fiscal condition has a strong impact on municipal fund balances, debt levels have a significant negative effect, larger governments tend to accumulate fewer reserves than smaller ones, and politically conservative, reformed, and professional governments are more likely to accumulate fiscal slack. In addition, municipalities that have a greater reliance on intergovernmental revenues have lower levels of reserves because these municipalities may not consider reliance on intergovernmental revenues as a risky condition. In contrast, Ványalós (2005) finds that New York school districts tend to build up large fund balances as a response to state aid uncertainties, which are caused by late budgets.

Wang and Hou (2012) find that county tax revenues and wealth are positively associated with savings, while capital outlay and unemployment reduce savings in North Carolina counties. Steward (2009) shows that the unreserved fund balance of Mississippi counties is affected by different factors during times of relative abundance and of relative resource scarcity; the fiscal, demographic, and political factors included in her model could explain little variation in fund balance. Stewart (2011) argues that fund balance levels should be determined by the political,

financial and environmental characteristic of each jurisdiction, rather than by a standard benchmark recommended for all jurisdictions. According to the study of Duncombe and Hou (2014) on New York school districts, savings strategies vary across different types of districts. In addition, the determinants of reserved fund balances are similar to those for unreserved fund balances, indicating that school districts consider both types of funds while make savings decisions.

Snow, Gianakis, and [Haughton \(2015\)](#) find that variations in stabilization fund balances can be explained by a community's political culture and financial management capacity. Communities with stronger anti-tax and pro-spending sentiments are found to have lower stabilization fund balances. For voters with an anti-tax political disposition, balances represent unnecessary taxation, whereas these balances stand for foregone spending for voters who possess a pro-spending political disposition. Stronger financial management capacity also contributes to maintaining higher stabilization fund balances.

[Gore \(2009\)](#) shows that a higher variation in revenues, more limited revenue sources, and higher population growth in municipalities are associated with higher levels of cash balances. Municipalities with high cash levels, or excess cash, spend substantially more on administrative expenses, manager salaries, and bonuses, but there is no evidence that excess cash is used to lower tax rates. The findings raise the potential ethical dilemma of professional financial managers possibly pursuing their own savings agenda that benefits themselves at the expense of citizens. Therefore, while slack resources, such as rainy day funds, can provide a cushion against revenue fluctuations, in the extreme they may be associated with agency problems between

municipal managers and citizens. Similarly, local government officials in China may be subject to the same agency problems; they are likely under certain circumstances to make decisions about slack resources in order to advance their personal benefits.

Only two studies relevant to local fiscal balances in China are found in the literature. Ma and Yu (2012) examine why money cannot be spent as budgeted. They find that since China's 1999 budget reform, governments at all levels have been plagued by the problem of spending delays that result in the accumulation of large amounts of unspent year-end balances. This could be good news for the government because it indicates that the budgetary controls established by the reform have helped to curb misallocation, embezzlement, and the diversion of budgetary resources, as well as other forms of malfeasance that had been persistent under the previous budgeting system. However, this could also be bad news because it indicates low operational efficiency and ineffective policy implementation. Spending delays early in the year often cause wasteful spending near the year end. Ma and Yu (2012) observe from their fieldwork in provincial and municipal budgeting that unexpected under-expenditures occur "not because the new budgeting system has exercised too much control but because the new system is not yet effective in exerting budgetary controls" (p. 83). This problem loomed large mainly due to weak legislative and administrative controls and inadequate budgeting capacity, among other reasons. Echoing this study, Deng and Peng (2011) also report that Chinese local governments consistently underestimate their revenue growth by a substantial margin, generating huge year-end slack, and that additional government spending funded by the slack strays completely free of legislative review and approval. They recommend a major budgetary reform to strengthen

the legal authority of the budget, as well as accountability in the public sector.

THE CASE OF CHINA: THE POLITICAL ECONOMY OF LOCAL FISCAL SLACK

The literature has grown in the past several decades on the political economy of fiscal policy, particularly fiscal balance and debt accumulation, in both developed and developing countries. This study presents hypotheses concerning the factors that affect local fiscal slack based on two main lines of arguments presented in this literature. The first argument states that fiscal policy, meaning government fiscal slack in the context of this study, is determined by opportunistic policymakers whose choices are made with the intention of maximizing voter support. The second argument holds that fiscal and budgetary institutions matter to policymakers when making fiscal choices (Eslava 2006). Given that China has yet fully to establish democratic mechanisms of popular elections and budgetary decision making, local government officials face distinctive incentives when formulating fiscal policies compared with their Western counterparts. In comparison to those in democratic systems facing electoral incentives, in the Chinese governance structure, local officials are held accountable to performance criteria specified by officials from above. Therefore, based on the first argument, this study proposes hypotheses concerning the political incentives faced by local officials when making fiscal choices in the specific context of China. Moreover, in accordance with the second argument, it proposes hypotheses regarding the impact of fiscal incentives resulting from the intergovernmental fiscal arrangements on local officials' decisions on fiscal slack.

Attempting to explain China's rapid economic growth, scholars have noted the important role played by local officials in building infrastructure, promoting businesses, and attracting foreign investment. The "helping hand" (pro-business role) of Chinese local officials contrasts

sharply with the “grabbing hand” (rent-seeking behavior) of local officials in other transitional and developing countries (Krueger 1974; Frye and Shleifer 1997; Li and Zhou 2005). Scholars have put forward two principal explanations for the different behaviors of Chinese local officials. The first, known as “market-preserving federalism,” suggests that fiscal decentralization and intergovernmental fiscal revenue-sharing contracts from 1980 to 1993 provided strong fiscal incentives for provincial officials to promote economic growth (Montinola, Qian, and Weingast 1996; Li and Zhou 2005). The central government signed revenue-sharing contracts with provincial governments that essentially made the latter the residual claimants of the budgetary revenue. Jin, Qian, and Weingast (2005) confirm that the “fiscal contracts system” substantially strengthened the fiscal incentives of provincial governments, which generally contributed to provincial economic development. By comparing studies of federalism the Chinese style and federalism the Russian style, they find that the crucial difference concerns the fiscal incentives provided for local governments to pursue market-supporting activities.

Nevertheless, local officials in China continued to promote economic development even after the central government restructured central–provincial fiscal relations in its own favor with the 1994 and 2002 revenue-centralizing tax reforms (Tao et al. 2010; [Su et al. 2012](#)).⁶ This takes us to the second explanation that focuses on the effect of political incentives, or the career path, of local officials in China, in comparison to the focus of the first explanation on fiscal incentives ([Li and Zhou 2005](#)).⁷ According to this view, the personnel management reform that proceeded alongside the financial and tax reforms, but has long been overlooked in the literature, is equally important. After the 1980s’ personnel reform, the central government used personnel control

measures to motivate local officials to pursue local economic growth; in other words, it promoted or demoted officials according to their performance in terms of GDP growth. [Li and Zhou \(2005\)](#) provide empirical evidence that the likelihood of the promotion (termination) of provincial leaders is positively (negatively) associated with provincial GDP growth. Chen, Li, and Zhou (2005) also find that the turnover of provincial leaders hinges on provincial economic performance relative to that of their immediate predecessors.

Rather than focusing on fiscal or political incentives alone, later studies reveal that both types of incentives have been influential in determining local officials' behaviors. Chinese local governments have focused on urbanization as a consequence of the recentralization of revenues by the central government in 1994 and 2002, which no longer made it profitable for them to continue to promote rural industrialization. To compensate for the lost local revenue resulting from the tax reforms, local governments have been assigned exclusive rights to the business tax that consists primarily of taxes levied upon the construction and real estate industries, as well as the service sector. The monopoly right assigned by the central government to local governments over the conversion of farmland to non-arable usages has also brought "windfall profits" to local governments, thanks to escalating land prices on the one hand and artificially low compensation to farmers on the other. Therefore, the revenues generated from the business tax and the farmland conversion process have provided local governments with powerful fiscal incentives to urbanize China. Since urbanization contributes to promoting local GDP growth, it also enhances the prospects of local officials' career advancement ([Xu 2011](#); Kung, Xu, and Zhou 2013).

In order to explain local officials' behaviors during China's reform and development, we

need to understand the fundamental differences between a federal state and the regionally decentralized authoritarian regime in China, which is characterized by a combination of political centralization and economic regional decentralization in its governance structure (Xu 2011). China's political and economic institutions determine the incentive structures under which local officials operate. On the one hand, the governance of economic matters is mostly delegated to sub-national governments. Regional economies, including provinces, municipalities, and counties, are relatively self-contained, and sub-national governments are assigned the power to initiate and coordinate reforms, provide public services, and make and enforce laws within their jurisdictions. This feature makes the Chinese economy qualitatively different from a typical centrally planned economy. On the other hand, the highly centralized Chinese political and personnel governance structure fundamentally distinguishes the Chinese regime from fiscal federalism. Chinese local officials do not face pressure due to voice, exit, or election in a system of fiscal federalism. Instead, they face strong incentives to meet the career advancement criteria defined by officials from above ([Xu 2011](#)).

The Chinese central government maintains its influence over local officials' incentives by determining their career paths (Huang 1996; Landry 2008; [Xu 2011](#)). The central government makes decisions concerning the appointment, promotion, demotion, and removal of provincial governors. It grants each level of sub-national government the power to make such decisions for key officials one level below it. This nested network extends the central government's personnel control measures to all tiers of sub-national government ([Burns 1994](#)). Each level of government stipulates a set of performance criteria for leading officials one level below. Local officials are

then evaluated based on important tasks and targets specified in the performance contract signed with their superiors ([Tsui and Wang 2004](#)). Moreover, the rotation and cross-regional transfer of local leaders are commonly used practices to enhance the effectiveness of the personnel control system (Xu, Wang, and Shu 2007). This personnel control approach is the major instrument employed by the central government to provide incentives for local officials to promote reform and development within their regions. Indeed, the intimate relationship between the performance of local officials and their career prospects is well documented in previous empirical studies (Kung, Xu, and Zhou 2013).

Within the growth-based promotion path, prefectural leaders as rational individuals might adjust local fiscal behavior in order to maximize their own political and personal benefits as “agents” of the “principal” of higher-level governments ([Guo 2009](#); [Rosen 1986](#)), similar to the agency problems of municipal managers discussed in [Gore \(2009\)](#) in the American context. Therefore, this study develops two hypotheses with political variables for empirical tests. The first political variable, the party secretary’s distance to mandatory retirement, is calculated by subtracting the party secretary’s age from the mandatory retirement age of 60 for prefectural officials. When a party secretary is in an early stage of his or her career, he or she may have stronger incentives to increase spending for growth in order to accelerate local development, which leaves fewer slack resources available for other purposes.

H1: The local party secretary’s distance to mandatory retirement has a negative impact on local slack levels.

The second political variable, the party secretary’s tenure, is measured as the local

political leader's accumulated time in office (in months) by the end of the observation year.⁸ It takes time for a new leader to settle in, and there is always a time lag in budgetary decision-making and implementation. Therefore, the longer a political leader stays in office in a prefecture, the more likely he or she is capable of mobilizing financial resources and tapping into slack resources for promoting local economic development, thereby enhancing his or her prospects of career advancement. In comparison with the continuity and stability of public service programs, economic development is a more important target for the prefectural leaders' performance evaluation.⁹

H2: The local party secretary's tenure has a negative impact on local slack levels.

Based on the above discussion, fiscal incentives have actively shaped the behavior of local officials in the processes of industrialization and urbanization in China. Here, this study proposes three hypotheses concerning intergovernmental fiscal arrangements to identify the effects of fiscal factors on local fiscal slack levels. Previous studies in the United States have found mixed empirical results about the impact of intergovernmental grants on fiscal balance (Hendrick 2006; Ványalós 2005). In China, there is often uncertainty about the allocation of money from above, and thus prefectural governments may set aside resources as a cushion against this uncertainty. For empirical testing, this study formulates the following hypothesis:

H3: The reliance on fiscal transfers exerts a positive impact on local slack levels.

The 1994 reform in China made arrangements for central–provincial revenue sharing, but it did not have an impact on fiscal arrangements below the province level. The Chinese central government does not strictly control the assignment of sub-provincial revenue and expenditure.

Consequently, provincial governments enjoy substantial discretion in this regard (Wu and [Wang 2013](#)). Since the geographic areas of many Chinese provinces are comparable to those of European countries, intra-provincial diversity in socio-economics and variation in intergovernmental fiscal arrangements are both tremendous. Sub-provincial decentralization is much more diversified across provinces in China than what is typically found in many other countries (Dollar and Hofman 2008). Local governments, particularly at the sub-provincial level, are assigned a hefty share of the responsibility for the provision of the bulk of public services. As a result, China ranks as one of the most decentralized countries in the world in terms of its expenditure assignments ([Dabla-Norris 2005](#)). Recent research ([Wu and Wang 2013](#)) shows substantial variation in sub-provincial expenditure decentralization, calculated as the share of sub-provincial expenditure in total provincial and sub-provincial expenditure. Higher degrees of expenditure decentralization, or more spending responsibilities for local governments, are expected to lead to lower local fiscal slack levels.

H4: Expenditure decentralization in a province negatively affects local slack levels.

Similarly, sub-provincial revenue decentralization, or the share of sub-provincial revenue in total provincial and sub-provincial revenue, varies significantly across provinces. Tax reforms have been recommended to secure revenue adequacy and fiscal autonomy of local governments ([Dabla-Norris 2005](#)). Greater revenue decentralization results in enhanced local revenue capacity. Therefore, revenue decentralization is hypothesized to lead to higher slack levels.

H5: Revenue decentralization in a province positively affects local slack levels.

MODEL, DATA, AND METHODS

Dependent Variables

This study develops two dependent variables to test the hypotheses proposed above. The first is the ratio of fiscal slack, or accumulated budget surplus over the years, to total budgetary revenue (including intergovernmental transfers). The second variable is per capita real fiscal slack in Chinese Renminbi (CNY). These two variables, in share and amount, respectively, capture the importance and volume of slack resources in each prefecture.

Independent Variables

The independent variables are comprised of major political and fiscal factors as well as control variables for prefectural features. To test H1 and H2, similar to [Liang and Langbein \(2015\)](#) and Li and Zhou (2005), this analysis includes two political variables, namely a prefectural party secretary's distance to mandatory retirement and his or her tenure in that local political leadership position. The first fiscal variable included in the model is transfer dependency, measured as the share of transfers from higher-level governments in prefectural expenditure; this is to test H3. The model contains two decentralization measures, of expenditure and revenue, at the provincial level, to test H4 and H5. Expenditure decentralization is the share of sub-provincial outlays in the sum of provincial and sub-provincial outlays; revenue decentralization is the share of sub-provincial revenues in the sum of provincial and sub-provincial revenues.

We also include a number of socio-economic and demographic variables as controls in the model. The revenue ratio, calculated as the share of local revenue to GDP, indicates the revenue capacity of prefectural governments: those with higher revenue capacity would be expected to

have more fiscal slack. Per capita real GDP measures the local level of economic development: a prefecture with a higher level of economic development is more likely to accumulate more fiscal slack. Population is a control for the size of each jurisdiction. As urbanization provides powerful fiscal and political incentives for local government officials, urbanization level, which is measured as the percentage of the registered urban population (with urban *hukou*) in the total population, is included in the models as a control variable.¹⁰ The ratios of secondary and tertiary industries are proxies for local economic and industrial structures. As indicated by previous research (for example, [Hendrick \(2006\)](#)), debt levels have a significant negative impact on fiscal slack. Unfortunately, the magnitude of local government indebtedness in China remains a puzzle due to the lack of reliable public data (He, Lin, and Tao 2014).¹¹

The dataset is a panel of 249 prefectural city governments from 1999 to 2009. The sample is 89 percent of the total number of prefectural governments located in 22 provinces and autonomous regions; all types of jurisdictions at this level in the country are well-represented in the dataset.¹² The sample years cover almost the entire window of time since the 1994 tax restructuring to the most recent year for which data are readily available. Fiscal variables are collected from the official and authoritative *Compendium of Fiscal Statistics for Prefectures, Cities, and Counties* and the *Finance Yearbook of China*. The two political variables are collected from online sources.¹³ Data on the other control variables are taken from *China Data Online*. Table 1 provides the definitions and data sources of the variables used in this analysis and Table 2 presents the descriptive statistics of the variables.

[Tables 1 and 2 about here]

The mean value of per capita fiscal slack is CNY 289,¹⁴ ranging from the lowest of negative CNY 214 to a very high value of CNY 3,864. The fiscal slack ratio averages 13 percent

in the sample period, ranging from -71 percent to 93 percent (see Table 2). The distribution of these two measures shows significant variation among prefectures by their respective levels of economic development. Figure 1 provides a summary of the variation across four regions – coastal, northeast, central, and western. Localities along the east coast, China’s most-affluent region, hold the highest average fiscal slack, reaching CNY 427 in the sample period, while those in central China hold only less than half that amount on average. Northeast and western localities have an average of CNY 237 and CNY 226, respectively. Fiscal slack ratios also vary across the four regions, ranging from a high of nearly 18 percent for the coastal localities to a low of 8 percent in the northeast. Figure 2 presents the sample-wise average slack resources by year. The real per capita amount increases substantially from CNY 147 in 1999 to CNY 558 in 2009, an increase of 280 percent. In the same period, the fiscal slack ratio increases from below 12 percent in 1999 to over 16 percent in 2009.

[Figures 1 and 2 about here]

METHODOLOGY

To identify the determinants of local slack resource levels, this analysis estimates the following model:

$$y_{it} = \beta_1 + \beta_2 x_{it} + \alpha_i + \delta_t + \varepsilon_{it}$$

where y , the dependent variable, is either the ratio or amount of local fiscal slack; x is a matrix of explanatory variables; α_i is prefecture-fixed effects; δ_t represents year-fixed effects; and ε_{it} is the random error term. Diagnostic statistics show the presence of autocorrelation and heteroskedasticity in the model; prefecture-clustered standard errors are therefor used to control for heteroskedasticity and intra-prefecture error correlation.

Because local financial management involves activities and interactions that span multiple levels of the government hierarchy, dual-level modeling is employed for this empirical analysis. The first level is prefecture and the second level is province. Since prefectures are nested within provinces, prefectures in one province are more similar to one another than to those in other provinces. A multilevel random coefficient model is estimated, enabling the simultaneous examination of relationships at the prefecture level and relationships between prefectures and provinces (and the center). This approach models residuals at both the prefectural and the provincial levels, and thus it formally adjusts for the nonindependence of prefectures in the same province ([Bryk and Raudenbush 1992](#)). Without modeling such nonindependence, the standard errors of the estimates may be biased downward, which, in turn, may result in misleading conclusions about the impact of the variables in the model ([Selden and Sowa 2004](#); Snijders and Bosker 1999).¹⁵

RESULTS AND DISCUSSION

Table 3 reports the regression results of three models with the share of fiscal slack in total revenue as the dependent variable. The first two models are estimated with both prefecture- and year-fixed effects; the second and third models control for province-level revenue decentralization and expenditure decentralization. Looking at the coefficient estimates from Model 2, as expected, the party secretary's distance to mandatory retirement has a negative coefficient and this is significant at the 5 percent level, which suggests that younger local top leaders may be motivated to increase expenditures for government-funded projects in order to accelerate local development. This is an important measure in the local cadre's performance evaluation, which, in turn, results in a lower level of slack resources. The party secretary's length

of time in the current office is not statistically significant at the 10 percent level. Thus, H1 is supported by the empirical analysis, but H2 is not.

Transfer dependency is statistically significant at the 1 percent level; a one percentage point increase in transfer dependency drives up the share of slack resources by 0.39 percentage points. This empirical result provides strong support for H3. With regard to the two province-level fiscal variables, expenditure decentralization is statistically significant at the 1 percent level; its negative coefficient suggests that the higher expenditure responsibilities of prefectural cities lead to a lower share of fiscal slack. The coefficient on revenue decentralization is not statistically significant at the 10 percent level. Therefore, the empirical results support H4 for expenditure decentralization, although not H5 for revenue decentralization.

As expected, the revenue ratio is highly significant and positively correlated with the dependent variable, indicating that a stronger revenue capacity of prefectural cities may contribute to a higher share of fiscal slack. The coefficient for population is statistically significant at the 1 percent level: a larger population size is associated with a higher slack ratio; no scale economy is observed here.¹⁶ The urbanization level is not statistically significant; however, other measures that can better capture prefectural urbanization activities need to be explored in future research. The other control variables in the model are not statistically significant at the 10 percent level.

For the multilevel analysis, following previous studies (for example, Heinrich 2002), the intra-class correlation coefficient is calculated based on an unconditional model, which does not include any covariates in the prefecture-level or province-level sub-models. The result indicates

that 26.7 percent of variation in the dependent variable is attributable to the province-level random intercept, and that the variation is substantive and statistically significant.

The results from the multilevel random coefficient model (Model 3) are consistent with those from the first two models. The coefficients with regard to the party secretary's distance to retirement, transfer dependency, expenditure decentralization, the revenue ratio, and population are statistically significant and have the same signs as those from Models 1 and 2. In addition, GDP, the secondary industry ratio, and the tertiary industry ratio are also highly significant with a positive sign, indicating the positive relationship of these three variables to slack resources.

[Table 3 about here]

Then the dependent variable of real per capita fiscal slack is used to estimate the same fixed effects and multilevel random coefficient models, with the results shown in Table 4. The results are mostly consistent with those discussed in Table 3. The party secretary's distance to retirement remains significant in the multilevel analysis, though it loses statistical significance in the fixed effects models. The party secretary's tenure has an expected negative sign and becomes significant at the 10 percent level in the multilevel model. Transfer dependency remains highly significant in all three models. Expenditure decentralization is significant at the 1 percent level in Model 2. Similarly, revenue decentralization has an expected positive sign and is highly significant in Model 2, which suggests that the higher revenue capacity of prefectural cities may contribute to higher slack resource levels. Budgetary revenue ratio and GDP are highly significant in all three models with the expected positive coefficients. In general, the results are robust to varying specifications in models with either of the two dependent variables.

[Table 4 about here]

CONCLUSION

By employing a panel dataset of a large number of prefectural governments in China for an extended period of time, this study has aimed to examine the effects of political and fiscal incentives on local government behavior concerning fiscal slack in China. It improves our understanding of the working mechanisms of institutions for financial administration in China, so that we can better explain local government officials' behaviors in reform and development. Based on previous studies of the political economy of fiscal policy, this study formulated several hypotheses for empirical testing. It developed a model that comprises some major political, fiscal, and socio-economic factors to explain local governments' volume and share of fiscal slack in the total budget in the context of a distinctively Chinese political and administrative structure. The empirical results of the analysis indicate the importance of political incentives in local fiscal decisions. The personnel control system that holds local officials accountable to performance measures defined by officials from above may result in unintended consequences in local financial administration. This study also suggests that fiscal incentives resulting from intergovernmental fiscal arrangements influence local governments' decisions on fiscal slack. The reliance on intergovernmental transfers and assignment of expenditure responsibilities may significantly affect local slack resource levels. The differences across provinces and interaction between provincial and local governments may have a substantial impact on local fiscal behavior.

Since its last major restructuring in 1994, China's flawed fiscal system has muddled through for over two decades. Now a major fiscal reform has been set in motion, and the arrangements to share revenue, spending responsibilities and borrowing authority between the center and localities are still under deliberation (Koch-Weser 2014). This study suggests that

future reforms need to address the political and fiscal incentives faced by local officials in order to improve their performance in managing fiscal slack. The effectiveness of the central government's recent move to include local officials' mishandling of local finances in performance assessment remains to be seen. The upcoming decisions to change the composition of local tax revenue and to reconfigure central-local spending obligations (Koch-Weser 2014) will surely have a great impact on local actions that concern fiscal slack.

With the support of more detailed budget data, future studies need to get behind the year-end aggregate fiscal balance data and examine the dynamics of budget implementation within the fiscal year, the strategic considerations of revenue estimation by local officials, and the incentive mechanisms for local revenue and spending decisions. Further research in this area will shed additional insight into the ongoing reform of China's fiscal and budgetary systems and improve its capacity in budget control and implementation.

The results of this study are still preliminary due to data limitations. More exhaustive research, with better data, is necessary to help create effective fiscal rules for establishing an institutionalized fiscal reserve system for sub-national governments in China. This would greatly benefit the development of their countercyclical fiscal capacity and ensure the continuation of China's remarkable economic growth.

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REFERENCES

Besley, T. and A. Case. 1995. [“Does Electoral Accountability Affect Economic Policy Choices? Evidence from Gubernatorial Term Limits.”](#) *Quarterly Journal of Economics* 110(3): 769-798.

Blanchard, O. and A. Shleifer. 2001. [Federalism with and without Political Centralization: China vs. Russia. *IMF Staff Paper Series*. No. 48. Washington, DC: International Monetary Fund. pp. 171–179.](#)

Bryk, A. S. and S. W. Raudenbush. 1992. [*Hierarchical Linear Models: Applications and Data Analysis Methods*. Newbury Park: Sage.](#)

Burns, J. P. 1994. [“Strengthening Central CCP Control of Leadership Selection: The 1990 Nomenklatura.”](#) *China Quarterly* 138: 458–91.

Chen, Q. 2009. *Research on the Fiscal Level of Local Government in China*. Beijing: Economic Science Press.

Chen, Y., H. Li, and L. Zhou. 2005. "Relative Performance Evaluation and the Turnover of Provincial Leaders in China." *Economic Letters* 88(3): 421-425.

China Daily. 2014. Timetable Set for New Fiscal System: Minister. Xinhua News Agency. (July 7). Retrieved from http://usa.chinadaily.com.cn/business/2014-07/07/content_17651911.htm.

Coe, C. K. 2007. "Preventing Local Government Fiscal Crises: The North Carolina Approach." *Public Budgeting and Finance* 27(3): 39-49.

Dabla-Norris, Era. 2005. Issues in Intergovernmental Fiscal Relations in China. IMF Working Paper Series. No. 05/30. Washington, DC: International Monetary Fund.

Deng, S. and J. Peng. 2011. "Reforming the Budgeting Process in China." *OECD Journal on Budgeting* 11(1): 75-89.

Ding, S. and J. Knight. 2009. "Can the Augmented Solow Model Explain China's Remarkable Economic Growth? A Cross-country Panel Data Analysis." *Journal of Comparative Economics* 37(3): 432-452.

Dollar, D. and B. Hofman. 2008. "Intergovernmental Fiscal Reforms, Expenditure Assignment, and Governance." Pp. 39–51 in J. Lou and S. Wang, ed., *Public Finance in China: Reform and*

Growth for a Harmonious Society. Washington, DC: World Bank.

Dothan, M. U. and M. L. Hand, K. Pierson, and F. Thompson. 2013. A Positive Model of Expenditure Growth. Available at SSRN: <http://ssrn.com/abstract=1077558> or <http://dx.doi.org/10.2139/ssrn.1077558>.

Duncombe, W. and Y. Hou. 2014. “The Savings Behavior of Special Purpose Governments: A Panel Study of New York School Districts.” *Public Budgeting and Finance* 34(3): 1–23.

Edin, M. 2003. “State Capacity and Local Agent Control in China: CCP Cadre Management from a Township Perspective.” *China Quarterly* 173: 35–52.

Eslava, M.. 2006. The Political Economy of Fiscal Policy: Survey. Inter-American Development Bank Research Department Working Paper. No. 583. Washington DC: Inter-American Development Bank.

Frye, T. and A. Shleifer. 1997. “The Invisible Hand and the Grabbing Hand.” *American Economic Review* 87(2): 354 – 358.

Gore, A. K. 2009. “Why Do Cities Hoard Cash? Determinants and Implications of Municipal Cash Holdings.” *Accounting Review* 84(1): 183–207.

Guo, G. 2009. "China's Local Political Budget Cycles." *American Journal of Political Science* 53(3): 621-632.

Government Finance Officers Association. 2002. Appropriate Level of Unreserved Fund Balance in the General Fund. Chicago: GFOA. Retrieved from <http://www.gfoa.org/downloads/budget-appropriate.pdf>.

He, Y., K. Lin and R. Tao. 2014. "The Local Government Fiscal Imperative and Debt Financing in China." Pp.195–236 in P. Arestis and M. Sawyer, ed., *Fiscal and Debt Policies for the Future*. Basingstoke: Palgrave Macmillan. Retrieved from <http://www.palgraveconnect.com/pc/doifinder/10.1057/9781137269539.0011>.

Heinrich, C. J. 2002. "Outcome-based Performance Management in the Public Sector: Implications for Government Accountability and Effectiveness." *Public Administration Review* 62(6): 712-25.

Hendrick, R. 2006. "The Role of Slack in Local Government Finances." *Public Budgeting and Finance* 26(1): 14-46.

Hou, Y. (2010, February 25-27). *Local Fiscal Behavior under State Provisions: Do Local*

Governments Smooth Revenue from Booms across Busts? Paper presented at the seminar on “States as Facilitators or Obstructionists of Local Governments,” Florida State University, Tallahassee, FL.

Huang, Y. 1996. *Inflation and Investment Controls in China: The Political Economy of Central–Local Relations during the Reform Era*. Cambridge, New York and Melbourne: Cambridge University Press.

Koch-Weser, I. 2014. China Fiscal Policy Revamp Faces Hurdles. USCC Economic Issue Brief No. 6. Washington DC: U.S.-China Economic and Security Review Commission. Retrieved from http://origin.www.uscc.gov/sites/default/files/Research/Issue%20brief_China%20Fiscal%20Policy%20Revamp%20Faces%20Hurdles.pdf.

Jin, H., Y. Qian and B. R. Weingast. 2005. “Regional Decentralization and Fiscal Incentives: Federalism, Chinese style.” *Journal of Public Economics* 89(9): 1719-1742.

Krueger, A. O. 1974. “The Political Economy of Rent-seeking Society.” *American Economic Review* 64(3): 291-303.

Kung, J. K., C. Xu and F. Zhou. 2013. “From Industrialization to Urbanization: The Social Consequences of Changing Fiscal Incentives on Local Governments' Behavior.” Pp. 491-509 in

D. Kennedy and J. E. Stiglitz, ed., *Law and Economics with Chinese Characteristics: Institutions for Promoting Development in the Twenty-first Century*. New York: Oxford University Press.

Landry, P. F. 2008. *Decentralized Authoritarianism in China: The Communist Party's Control of Local Elites in the Post-Mao Era*. Cambridge and New York: Cambridge University Press.

Li, H. and L. Zhou. 2005. ["Political Turnover and Economic Performance: The Incentive Role of Personnel Control in China."](#) *Journal of Public Economics* 89(9-10): 1743-1762.

Liang, J. and L. Langbein. 2015. ["Performance Management, High-Powered Incentives, and Environmental Policies in China."](#) *International Public Management Journal* 18(3): 346-385.

Ma, J. 2013. ["Hidden Fiscal Risks in Local China."](#) *Australian Journal of Public Administration* 72(3): 278-292.

Ma, J. and L. Yu. 2012. ["Why Money Cannot be Spent as Budgeted? Lessons from China's Recent Budget Reforms."](#) *Journal of Public Budgeting, Accounting and Financial Management* 24(1): 83-113.

Montinola, G., Y. Qian and B. R. Weingast. 1996. ["Federalism, Chinese Style: The Political Basis for Economic Success in China."](#) *World Politics* 48(1): 50-81.

Murphy, K. J. and J. L. Zimmerman. 1993. "Financial Performance Surrounding CEO Turnover."

Journal of Accounting and Economics 16(1): 273–315.

Prasad, E. S. 2009. "Is the Chinese Growth Miracle Built to Last?" *China Economic Review*

20(1): 103-123.

Rosen, S. 1986. "Prizes and Incentives in Elimination Tournaments." *American Economic*

Review 76(4): 701–715.

Selden, S. C. and J. E. Sowa. 2004. "Testing a Multi-dimensional Model of Organizational

Performance: Prospects and Problems." *Journal of Public Administration Research and Theory*

14(3): 395-416.

Shah, A. and C. Shen. 2008. "Fine-tuning the Intergovernmental Transfer System to Create a

Harmonious Society and a Level Playing Field for Regional Development." Pp. 129-154 in J.

Lou and S. Wang, ed., *Public Finance in China: Reform and Growth for a Harmonious Society*.

Washington, DC: World Bank.

Shelton, M. and C. B. Tyler (with Hembree, H.). 2000. "Local Government Reserve Funds and

Fund Balance: Some Applications of Business Concepts." *Municipal Finance Journal* 21(1):

1-18.

Shih, V. and Qi Zhang. 2007. "Who Receives Subsidies? A Look at the County-level in Two Time Periods." Pp. 145-165 in V. Shue and C. Wong, ed., *Paying for Progress in China*. London: Routledge.

Snijders, T. A. B., and R. J. Bosker. 1999. *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling*. Newbury Park, CA: Sage.

Snow, D., G. A. Gianakis and J. Haughton. 2015. "The Politics of Local Government Stabilization Funds." *Public Administration Review* 75(2): 304–314.

Stewart, L. S. M. 2009. "Examining Factors that Impact Mississippi Counties' Unreserved Fund Balance during Relative Resource Abundance and Relative Resource Scarcity." *Public Budgeting and Finance* 29(4): 45-73.

Stewart, L. S. M. 2011. "Does the Form of Government Influence Mississippi Counties' Unreserved Fund Balance during Relative Resource Abundance and Relative Resource Scarcity?" *Journal of Public Budgeting, Accounting and Financial Management* 23(4): 478-506.

Su, F., R. Tao, X. Lu and M. Li. 2012. “Local Officials' Incentives and China's Economic Growth: Tournament Thesis Reexamined and Alternative Explanatory Framework.” *China and World Economy* 20(4): 1-18.

Tao, R., F. Su, X. Lu and Y. Zhu. 2010. “Can Economic Performance Bring Promotion?” *Management World* 12: 13-26 (in Chinese).

Tsui, K. and Y. Wang. 2004. “Between Separate Stoves and A Single Menu: Fiscal Decentralization in China.” *China Quarterly* 177: 71-90.

Ványalós, I. 2005. “Fiscal Reaction to State Aid Uncertainties: Evidence from New York State.” *Public Budgeting and Finance* 25(4): 44–58.

Wang, W. and Y. Hou. 2012. “Do Local Governments Save and Spend Across Budget Cycles? Evidence from North Carolina.” *American Review of Public Administration* 42(2): 152-169.

Wong, C. P. W. 1997. “Rural Public Finance.” Pp. 167–212 in C. P. W. Wong, ed., *Financing Local Government in the People's Republic of China*. Hong Kong: Oxford University Press.

World Bank. 2002. China–National Development and Subnational Finance: A Review of Provincial Expenditures. Washington, DC: World Bank.

Wu, A. M. and W. Wang. 2013. "Determinants of Expenditure Decentralization: Evidence from China." *World Development* 46: 176-184.

Xu, C. 2011. "The Fundamental Institutions of China's Reforms and Development." *Journal of Economic Literature* 49(4): 1076-1151.

Xu, X., X. Wang and Y. Shu. 2007. "Local Officials and Economic Growth." *Economic Research Journal* 42(9): 18-31 (In Chinese).

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Notes:

¹ Local governments in China refer to all sub-national levels of government in this study.

² In recent years, the international market and academic circles have kept a keen watch on Chinese governments' debts, particularly local government debts. The debt finance of Chinese local governments is completely devoid of fiscal transparency (Ma 2013). Local governments had not been formally granted the authority to borrow until the recent revision of the Budget Law in 2014. Thus, local government debts have accumulated mainly in the form of contingent liabilities, which are operated off budget (Ma 2013). By establishing local financing vehicles as off-budget entities, local governments have circumvented legal constraints and incurred considerable debts with explicit and implicit government guarantees and obligations for repayment if the capital projects were to fail. Due to the lack of reliable public data, it remains difficult to track local government indebtedness in China (He, Lin, and Tao 2014). Most debt revenues of Chinese local governments have been used for long-term infrastructure investment rather than for operating purposes (Ma 2013).

³ Since implementing its reform and open-door policy in 1978, China has maintained an average annual GDP growth rate of over 9 percent (Ding and Knight 2009; Prasad and Rajan 2006; Prasad 2009). According to some sources, few countries have matched China's growth rate over the same period of time.

⁴ See http://www.china.org.cn/opinion/2012-07/05/content_25826944.htm.

⁵ The Chinese government system is comprised of five hierarchical levels: the center, provinces, prefectures, counties, and townships (Chen 2009; Wong 1997). There exists a strict vertical hierarchy among the five levels in fiscal (as well as other) affairs (Shah and Shen 2008). For example, prefectures fall directly under their respective provincial administration (Wong 1997).

⁶ The 1994 tax reform gave the central government 75 percent of the value added tax and provinces and their localities the remaining 25 percent. Provinces and their localities were ordered to give 50 percent of personal and enterprise income tax to the central government in 2002 and 60 percent in 2003 (Kung, Xu, and Zhou 2013; Shih and Zhang 2007).

⁷ Similarly, some studies in the Western literature examine the link between the re-election probabilities of U.S. gubernatorial officials and their choices of economic policy and the career concerns of firm managers (Besley and Case 1995; Murphy and Zimmerman 1993).

⁸ The study includes the two variables of a city party secretary rather than a mayor in the models due to some practical considerations. Under China's party-state political system, the concentration of power in the hands of city party secretaries, nicknamed first-in-command (*yibashou* in Chinese), grants them more control over socioeconomic policies in their jurisdictions than mayors.

⁹ For the evaluation of local leaders, work achievement accounts for 60 to 70 percent of performance, while other aspects, such as political integrity and competence, account for the remainder. Competition between local officials at the same level is an essential part of the personnel control system, as their performance ranking among peers is directly linked to their chances for promotion (Edin 2003).

¹⁰ The *hukou*, a household registration system in China, divides residents into two categories: urban and rural *hukou* holders. This system ties residents' access to benefits and services to their residential status, which puts rural residents in a disadvantageous position. For several newly developed cities in the Pearl River delta, including Shenzhen, Zhuhai, Zhongshan, and Dongguan, all of their permanent residents constitute the urban *hukou* holders. Thus, their values for the urbanization level variable are 100 percent.

¹¹ The absence of debt level variable may generate an omitted variable bias problem. For this analysis, the inclusion of prefecture- and year-fixed effects in estimation at least partly removes the effect of omitted variable bias.

¹² The four municipalities directly under the central government are excluded from this analysis. Prefectural cities in regions mainly for ethnic minority groups, including Xinjiang, Tibet, Qinghai, Ningxia, and Yunnan in western China, are also excluded because they operate quite differently from other cities and there are missing data for some major variables.

¹³ Data on the two political variables are garnered from two websites: <http://baike.baidu.com/> and <http://www.hotelaah.com/liren/index.html>. Cross-checking with other data sources was carried out to ensure accuracy and reliability.

¹⁴ The exchange rate between the U.S. Dollar and CNY has been approximately 6.20 in recent years.

¹⁵ For a more detailed discussion of the method, please see Heinrich (2002).

¹⁶ When population squared is included in the model, the result is not statistically significant and does not change the sign of the coefficient on population.

Table 1. Definition and Data Sources of Variables

Variable	Definition	Data Source
Fiscal slack amount	Accumulated budget surplus per capita in real CNY	Compendium of Fiscal Statistics for Prefectures, Cities, and Counties (1999-2009)
Fiscal slack ratio	% of accumulated budget surplus in total budgetary revenue	Calculated by authors
Party secretary's distance to mandatory retirement	60 minus a prefectural party secretary's age	Online sources
Party secretary's tenure	Prefectural party secretary's accumulated time in office (in months) by the end of that year	Same as above
Transfer dependency	% of fiscal transfer from upper-level government in local budgetary expenditure (measured at the prefectural level)	Compendium of Fiscal Statistics for Prefectures, Cities, and Counties (1999-2009)
Expenditure decentralization	Expenditure share of sub-provincial governments in a province (measured at the provincial level)	Finance Yearbook of China (1999-2009)
Revenue decentralization	Revenue share of sub-provincial governments in a province (measured at the provincial level)	Same as above
Revenue ratio	% of local budgetary revenue in GDP	Compendium of Fiscal Statistics for Prefectures, Cities, and Counties (1999-2009)
GDP	Real GDP per capita (in ,000 real CNY)	China Data Online (1999-2009)
Population	Total population at year end (in millions)	Same as above
Urbanization level	% of non-agricultural population in the total population	Same as above
Secondary industry ratio	% of secondary industry output in GDP	Same as above
Tertiary industry ratio	% of tertiary industry output in GDP	Same as above

Table 2. Descriptive Statistics (1999-2009)

Variable	Mean	Std. Dev.	Min	Max
Fiscal slack amount	289.22	380.41	-214.23	3,864.10
Fiscal slack ratio	13.43	12.08	-70.81	93.35
Party secretary's distance to retirement	8.46	3.85	0.00	22.00
Party secretary's tenure (in months)	29.97	20.34	1.00	129.00
Transfer dependency	59.29	26.50	0.00	147.85
Expenditure decentralization	77.33	7.32	53.23	89.23
Revenue decentralization	79.62	7.88	55.20	94.49
Revenue ratio	4.29	2.20	0.12	24.52
GDP (in ,000 real CNY)	22.02	18.53	2.16	183.73
Population (in millions)	1.19	1.02	0.17	8.01
Urbanization level	32.45	16.31	9.60	100
Secondary industry ratio	50.14	12.15	8.04	90.10
Tertiary industry ratio	41.13	9.81	7.90	80.90

Notes: The number of observation is 2133. All financial variables are adjusted for inflation.

Table 3. Determinants of Fiscal Slack Ratio (1999-2009)

Explanatory Variable	Model		
	Fixed Effects		Multilevel
	1	2	3
Party secretary's distance to retirement	-0.16** (-2.51)	-0.15** (-2.40)	-0.20*** (-4.61)
Party secretary's tenure	-0.00 (-0.50)	-0.01 (-0.72)	-0.01 (-1.24)
Transfer dependency (%)	0.39*** (13.29)	0.39*** (14.00)	0.37*** (47.45)
Expenditure decentralization		-0.20*** (-2.84)	-0.16* (-1.70)
Revenue decentralization		-0.05 (-0.72)	-0.02 (-0.23)
Budgetary revenue ratio (%)	1.79*** (6.75)	1.81*** (6.82)	1.55*** (17.18)
GDP	0.03 (1.23)	0.03 (1.16)	0.11*** (9.95)
Population	1.74*** (3.02)	1.73*** (2.99)	2.48*** (12.71)
Urbanization level	0.02 (0.57)	0.03 (0.76)	-0.01 (-0.85)
Secondary industry ratio (%)	-0.02 (-0.30)	-0.02 (-0.27)	0.18*** (7.22)
Tertiary industry ratio (%)	-0.13 (-1.66)	-0.14 (-1.66)	0.07** (2.56)
Constant	-11.96* (-1.71)	7.02 (0.82)	-16.51** (-2.12)
<i>R-squared</i>	0.48	0.49	
<i>Number of observations</i>	2,133	2,133	2,133

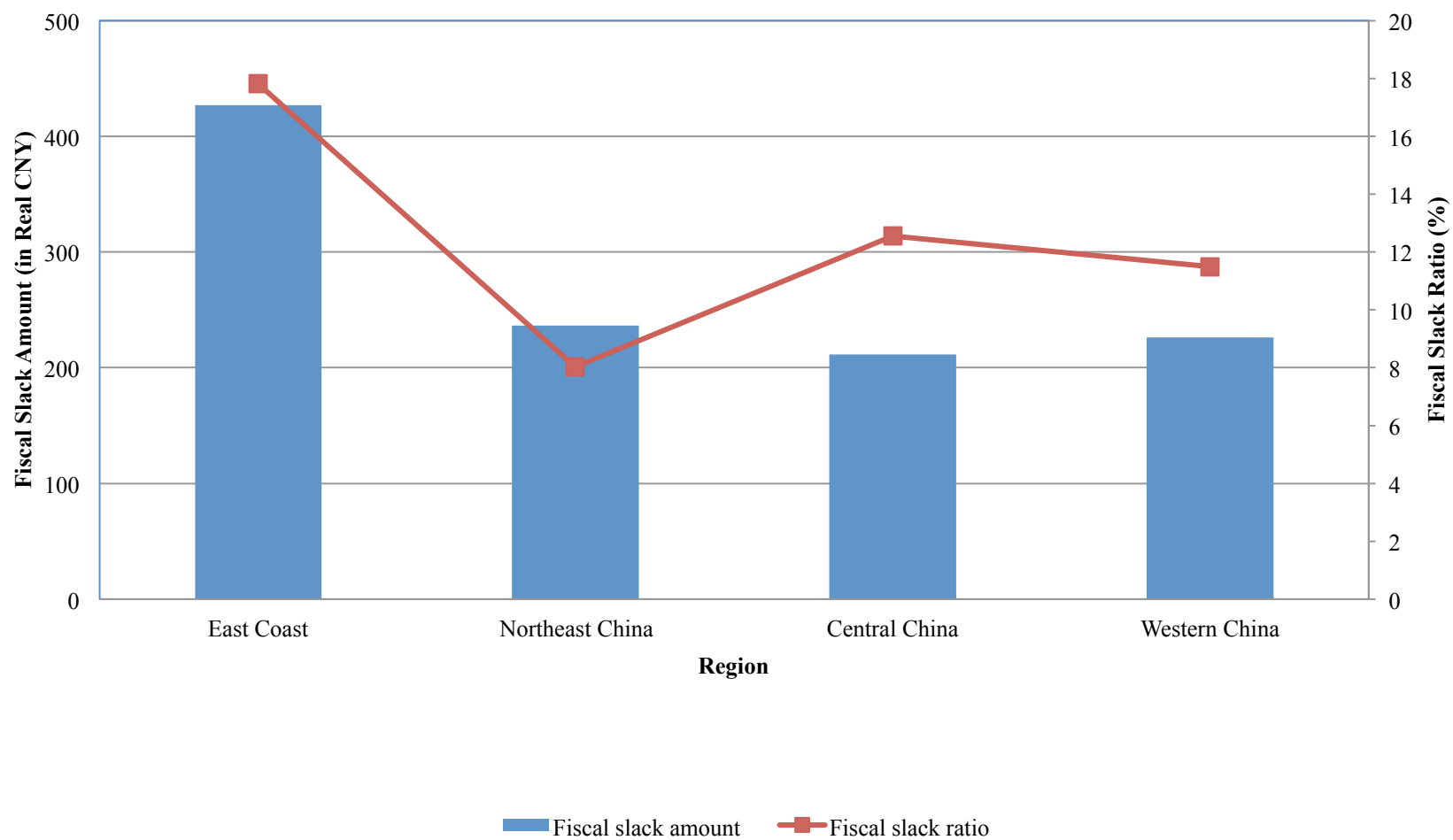
Notes: *** p<0.01, ** p<0.05, * p<0.1. t-statistics (in parentheses) are based on robust heteroskedasticity and autocorrelation consistent standard errors. Both fixed effects models controlled for year-fixed effects, but their coefficients are not included in the table.

Table 4. Determinants of Fiscal Slack Amount (1999-2009)

Explanatory Variable	Model		
	Fixed Effects		Multilevel
	1	2	3
Party secretary's distance to retirement	-1.33 (-0.81)	-1.00 (-0.64)	-3.86*** (-2.76)
Party secretary's tenure	-0.00 (-0.00)	-0.03 (-0.11)	-0.47* (-1.81)
Transfer dependency (%)	7.14*** (8.36)	7.47*** (8.39)	8.88*** (36.50)
Expenditure decentralization		-7.42*** (-3.29)	4.56 (1.33)
Revenue decentralization		5.55*** (2.91)	3.48 (1.44)
Budgetary revenue ratio (%)	67.58*** (5.95)	68.48*** (6.16)	81.32*** (28.91)
GDP	6.16*** (3.94)	5.68*** (3.85)	8.82*** (24.20)
Population	-26.39 (-1.02)	-36.92 (-1.40)	33.79*** (5.39)
Urbanization level	2.41 (1.44)	2.22 (1.31)	-1.47 (-3.19)
Secondary industry ratio (%)	-1.71 (-0.80)	-0.82 (-0.38)	6.14*** (7.81)
Tertiary industry ratio (%)	-2.52 (-1.21)	-1.95 (-0.92)	5.86*** (6.79)
Constant	-457.44** (-2.45)	-437.95* (-1.73)	-1,922.42*** (-8.24)
<i>R-squared</i>	0.51	0.52	
<i>Number of observations</i>	2,133	2,133	2,133

Notes: *** p<0.01, ** p<0.05, * p<0.1. t-statistics (in parentheses) are based on robust heteroskedasticity and autocorrelation consistent standard errors. Both fixed effects models controlled for year-fixed effects, but their coefficients are not included in the table.

**Figure 1. Fiscal Slack Amount and Ratio of Prefectural Cities by Region
(1999-2009)**



**Figure 2. Fiscal Slack Amount and Ratio of Prefectural Cities by Year
(1999-2009)**

